

Pāngarau



Kei hopu tōu ringa ki te aka tāepa, engari kia mau ki te aka matua

Mai rā anō, ahakoa ko wai te iwi, he mātauranga ō rātou e mārama ai rātou ki ngā pānga maha, ki ngā pānga rau o ngā āhuatanga i roto i ō rātou ao. Ko te mātauranga pāngarau tērā. Tērā ō tātou tīpuna Māori e tino mātau ana ki ngā pānga o roto i ngā ao i nōhia ai e ngā tamariki a Rangi rāua ko Papa. He āwhina nui tēnei mātauranga i ā rātou mahi o ia rā, pērā i te hanga whare, te whakaterere waka i te au moana, me te mahi māra kai. I te taenga mai o tauīwi, ka tino uru atu ō tātou tīpuna ki ngā mahi hou, pērā i te mahi tauhokohoko. He mea nui anō te mātauranga pāngarau kia eke ai rātou ki ngā taumata o ēnei mahi hou. I te takanga o te wā, kua whanake haere te mātauranga pāngarau puta noa i te ao, engari he āwhina nui tonu te pāngarau i roto i ngā whakanekeneke o tō tātou ao o ngā tau rua mano me tua atu. Ahakoa huri ki hea, kitea ai te mātauranga pāngarau e whakamahia ana i roto i ngā mahi o ia rā, i roto i ngā kaupapa ako katoa o te kura, i roto hoki i ngā tūranga mahi whānui tonu.

Te Hanga o tēnei Wāhanga Ako

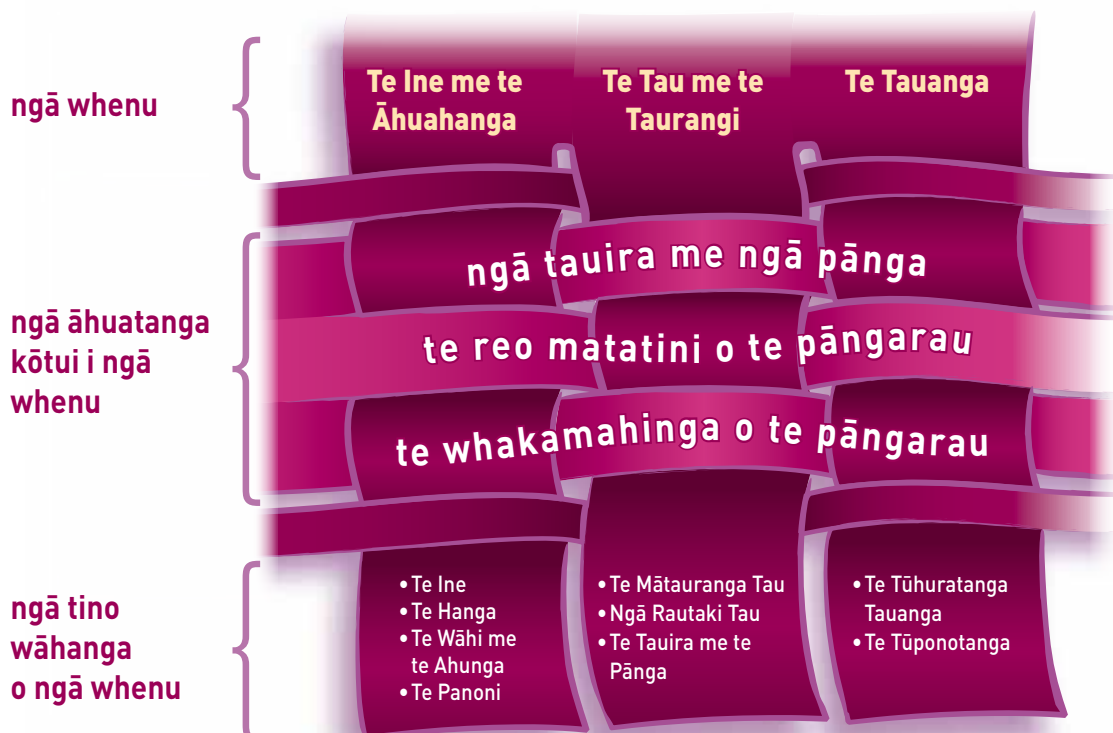
Ngā Whenu

E noho mai ana ngā kaupapa o te marautanga pāngarau ki ngā whenu e toru, arā, Te Tau me te Taurangi, Te Ine me te Āhuahanga, me Te Tauanga, mai i te Taumata 1 ki te Taumata 6. E rua anake ngā whenu o te Taumata 7 me te Taumata 8, arā, Te Taurangi me te Tuanaki, me Te Tauanga.

Kei roto anō i ia whenu ko ngā tino wāhanga, ā, kua tuhia ngā whāinga paetae ki raro i ēnei tino wāhanga.

E toru ngā āhuatanga e kōtuiti ana i ngā whenu:

- Ngā Tauira me ngā Pānga
Koia ko te pūtake o te pāngarau, arā, ko te tūhura, ko te whakamahia i ngā tauira me ngā pānga e puta ake ana i ngā rahinga, i ngā huinga raraunga, i ngā āhuatanga mokowā, i ngā āhuatanga rānei e pā ana ki te wā.
- Te Reo Matatini o te Pāngarau
Kei roto tonu i te reo Māori ōna ake kupu, ōna ake rerenga kōrero hei whakaahua i ngā ariā matua o te pāngarau. Āpiti atu ki tēnei, ko ngā tohu pāngarau me ngā momo whakaahuahanga pērā i te tūtohi me te kauwhata. Katoa ēnei āhuatanga ka kīia ko 'Te Reo Matatini o te Pāngarau'. Ka tipu ana te tamaiti, ka mātau haere ia ki te reo matatini o te pāngarau, koia hoki te huarahi matua e mārama ai ia ki ngā ariā pāngarau, e whakawhitihiti kōrero ai, e eke panuku ai i ngā taumata o tēnei wāhanga ako.
- Te Whakamahinga o te Pāngarau
Ka whātoro atu te pāngarau ki ērā atu wāhanga ako o te kura, otirā ki ngā kaupapa me ngā horopaki huhua o te whānau, o te hapū, o te iwi, o te hāpori, o te ao Māori, e ahu whakamua ai tātou i ēnei tū kaupapa katoa. He mea nui kia mārama haere te ākongi ki ēnei tini whakamahinga o te pāngarau, me te arohaehae anō i te takanga mai o te mātauranga pāngarau, te whaitakenga me te tika o te whakamahinga i te pāngarau.

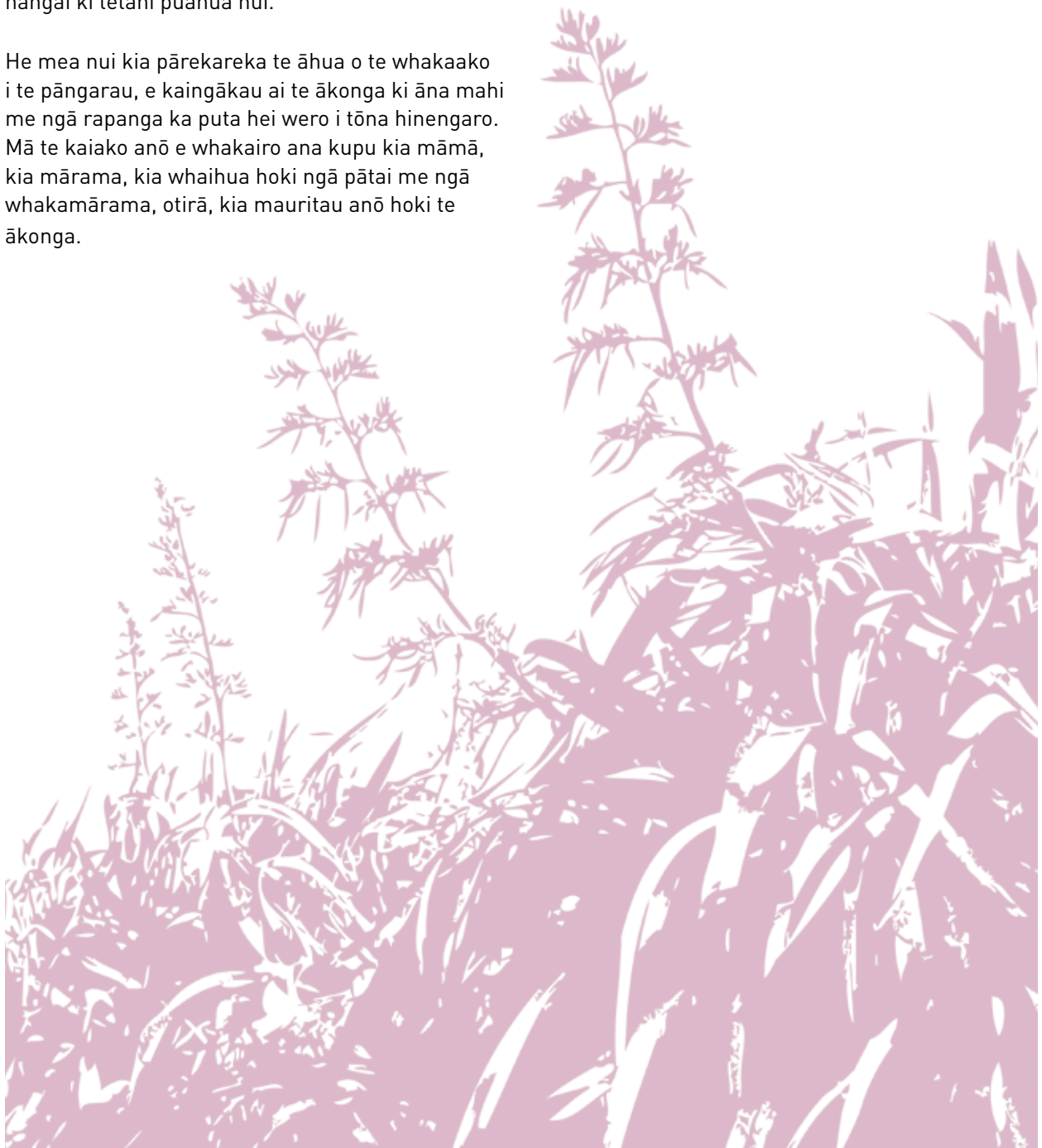


Te Whaitake o te Ako i te Pāngarau

Ko tā te pāngarau, he whakapakari i te auhatanga o te ākongā, te whakaaro arohaehae, te whakaaro arorau me te whakaaro whaitake, me tōna āhei ki te whakatakoto rautaki, ki te whakaoti rapanga, ki te arotake, ki te whakawhitiwhiti whakaaro hoki.

E tika ana kia takea mai ngā mahi me ngā rapanga pāngarau i ngā horopaki Māori me ērā atu horopaki e taunga ana te ākongā. I roto i āna mahi pāngarau, ka whakamahi te ākongā i ngā momo rauemi me ngā taputapu e hāngai ana, ka hanga tauira, ka kimi pānga, ka matapae i te hua ka puta i tētahi mahi, ka parahau take, ka whakatau tata, ka tātai kia tōtika te otinga, ka kimi tauira, ā, ka whakawhānui i ngā kōrero mō tētahi pūāhua iti kia hāngai ki tētahi pūāhua nui.

He mea nui kia pārekareka te āhua o te whakaako i te pāngarau, e kaingākau ai te ākongā ki āna mahi me ngā rapanga ka puta hei wero i tōna hinengaro. Mā te kaiako anō e whakairo ana kupu kia māmā, kia mārāma, kia whaihua hoki ngā pātai me ngā whakamārama, otirā, kia mauritau anō hoki te ākongā.





Te Reo Matatini o te Pāngarau

Ka whakawhitiwhiti whakaaro, ka āta wānanga te ākonga i āna mahi pāngarau, mā te kupu (ā-waha, ā-tuhi), mā te tohu, me ngā momo whakaahuahanga e hāngai ana. He mea nui tēnei hei tautoko i te whakatutukitanga o ngā whāinga paetae e whai ake nei, e pakari anō ai te whakaaro arorau, te whakaaro arohaehae, te whakaaro whaitake me te auahatanga o te ākonga e hāngai ana ki tēnei taumata.

Te Whakamahinga o te Pāngarau

Ka mōhio te ākonga, ka torotoro hoki ia i ngā whakamahinga o te pāngarau e hāngai ana ki tōna ake ao. Me kākahu anō ngā whāinga paetae ki ngā momo horopaki e taunga ana te ākonga.

Te Tau me te Taurangi

Te Mātauranga Tau

1. Ka mōhio ki ngā tauoti 0–100:
 - te whakaingoa i ngā tohuta;
 - ngā raupapa tatauranga whakamua, whakamuri hoki;
 - ngā tikanga uara tū;
 - te rima me ngā tauhono;
 - ngā tauhono o te tekau;
 - te tekau me ngā tauhono;
 - ngā tau ngahuru;
 - te maha o ngā tekau me ngā tahi kei roto i tētahi tau;
 - te rahi me te hanga o tētahi tau.
2. Ka mōhio ki ngā hautau māmā, pērā i ngā haurua me ngā hauwhā:
 - te tuhi i ngā tohu hautau;
 - te tikanga o te taurunga me te tauraro;
 - te raupapa hautau māmā;
 - te whakatauiria i te hautau (pērā i te hurihanga $\frac{3}{2}$).

Te Ine me te Āhuahanga

Te Ine

1. Ka mārama ki ēnei āhuatanga o tētahi mea e taea ana te ine:
 - te roa;
 - te horahanga;
 - te rōrahi (kītanga);
 - te taumaha (papatipu);
 - te hurihanga;
 - te paemahana;
 - te wā;
 - te utu.
2. Ka mārama ki te tikanga o te ine, arā, ko te whakatairite i te mea e inea ana ki te rahi o tētahi waeine.
3. Ka whakamahi taputapu ine aronga kē.
4. Ka raupapa, ka whakatairite hoki i ngā inenga.
5. Ka tatau waeine māmā.
6. Ka mōhio ki te pūmautanga o tētahi inenga.

Te Tauanga

Te Tūhuratanga Tauanga

1. Ka whai i ngā tikanga mō te tūhuratanga tauanga ki te whakatakoto, ki te whakautu pātai:
 - ka kohikohi raraunga;
 - ka wehewehe raraunga;
 - ka tatau raraunga;
 - ka hanga whakaari raraunga.
2. Ka mārama ki ngā whakaari raraunga.

Te Tūponotanga

3. Ka matapae, ka whakamātau i ngā putanga katoa o tētahi pūāhua tūponotanga whaitake māmā.





Te Tau me te Taurangi

Ngā Rautaki Tau

3. Ka whakaoti rapanga e whai wāhi mai ana te tauoti me te hautau māmā, ka whakamārama hoki i te:
- rautaki tatau;
 - rautaki whakarōpū;
 - rautaki tohatoha ōrite.

Te Taura me te Pānga

4. Ka hanga, ka whakarōa taura tāruarua, taura raupapa hoki.

Te Ine me te Āhuahanga

Te Hanga

7. Ka whakarōpū taonga i runga i te āhua o ngā taonga, pērā i te tae, te nui, me te maha o ngā tapa.
8. Ka mōhio ki ngā āhua ahu-2, pērā i te tapatoru, te tapawhā rite, te tapawhā hāngai, te porowhita, te taparima, te tapaono me te tapawaru.
9. Ka mōhio ki ngā āhua ahu-3, pērā i te pouaka, te rango me te poi.

Te Wāhi me te Ahunga

10. Ka whai, ka hoatu hoki i ngā tohutohu mō te nekeneke e whai wāhi mai ana:
- te tawhiti;
 - te ahunga;
 - te hurihanga (hurihanga $0, \frac{1}{4}, \frac{1}{2}, \frac{3}{4}, 1, 1\frac{1}{4}, 1\frac{1}{2} \dots$).
11. Ka whakamārama i te wāhi noho o tētahi mea.

Te Panoni

12. Ka tuhi, ka whakamārama i ngā hua o te neke, o te whakaata, o te huri i ngā āhua ahu-2 māmā.

Te Tauanga

Te Reo Matatini o te Pāngarau

Ka whakawhitiwhiti whakaaro, ka āta wānanga te ākonga i āna mahi pāngarau, mā te kupu (ā-waha, ā-tuhi), mā te tohu, me ngā momo whakaahuahanga e hāngai ana. He mea nui tēnei hei tautoko i te whakatutukitanga o ngā whāinga paetae e whai ake nei, e pakari anō ai te whakaaro arorau, te whakaaro arohaehae, te whakaaro whitake me te auahatanga o te ākonga e hāngai ana ki tēnei taumata.

Te Whakamahinga o te Pāngarau

Ka mōhio te ākonga, ka torotoro hoki ia i ngā whakamahinga o te pāngarau e hāngai ana ki tōna ake ao. Me kākahu anō ngā whāinga paetae ki ngā momo horopaki e taunga ana te ākonga.

Te Tau me te Taurangi

Te Mātauranga Tau

1. Ka mōhio ki ngā tauoti 0–1000:
 - te whakaingoa i ngā tohutau;
 - ngā raupapa tatauranga whakamua, whakamuri hoki;
 - ngā tikanga uara tū;
 - te maha o ngā tahi, ngā tekau, me ngā rau kei roto i tētahi tau;
 - te rahi me te hanga o tētahi tau;
 - ngā tikanga o te taurua me te taukehe.
2. Ka mōhio ki ngā rearua tae atu ki te 20, me ngā haurua e whai pānga ana.
3. Ka mōhio ki ngā hautau, pērā i ngā haurua, ngā hautoru, ngā hauwhā, ngā haurima me ngā hautekau:
 - te tuhi i ngā tohu hautau;
 - te tikanga o te taurunga me te tauraro o tētahi hautau;
 - te raupapa hautau māmā me ngā hautau e ōrite ana te tauraro.

Te Ine me te Āhuahanga

Te Ine

1. Ka hanga, ka whakamahi taputapu, waeine hoki e whitake ana, ka whakaoti rapanga māmā:
 - te roa;
 - te horahanga;
 - te rōrahi (kītanga);
 - te taumaha (papatipu);
 - te koki;
 - te paemahana;
 - te wā;
 - te utu.
2. Ka mārama ki te tikanga o tētahi āwhata, arā, he wehewehenga, he tāruaruatanga o tētahi waeine.
3. Ka mōhio ki te wāwāhi, ki te tāpiri hoki i ngā inenga.
4. Ka mārama ki te rahi o ngā waeine aro whānui māmā.
5. Ka mārama ki te whaitakenga o tētahi inenga.

Te Hanga

6. Ka whakarōpū taonga i runga i te āhuahanga o aua taonga, ka whakamārama hoki i ngā rōpū.
7. Ka tautuhi, ka whakamārama i ngā āhua ahu-2 me ngā āhua ahu-3 e kitea mai ana i te taiao, i te hanga o ngā whare me ngā taonga o ia rā.

Te Tauanga

Te Tūhuratanga Tauanga

1. Ka whai i ngā tikanga mō te tūhuratanga tauanga e whai wāhi mai ana te raraunga whakarōpū me te raraunga motumotu:
 - ka whakatakoto pātai;
 - ka kohikohi raraunga;
 - ka wehewehe raraunga;
 - ka hanga whakaari raraunga e whitake ana;
 - ka whakaputa kōrero hei whakautu i te pātai i tūhuratia;
 - ka mārama ki ngā tikanga matatika e hāngai ana.
2. Ka arohaehae i ngā kōrero e pā ana ki ngā hua o tētahi tūhuratanga tauanga.
3. Ka whakaputa kōrero mō ngā āhuatanga o ētahi whakaari raraunga māmā.

Te Tūponotanga

4. Ka tautohu, ka matapae, ka whakamātau i ngā putanga o tētahi pūāhua tūponotanga whitake:
 - ka mārama mēnā he ōrite, he rerekē, he rangirua rānei te tūponotanga o ētahi putanga.
5. Ka mōhio ki te reo māmā hei whakaatu tūponotanga.

Te Tau me te Taurangi

Ngā Rautaki Tau

4. Ka whakaoti rapanga e whai wāhi mai ana te tauoti me te hautau, ka whakamārama hoki i te:
 - rautaki tatau;
 - rautaki whakarōpū;
 - rautaki tohatoha ōrite;
 - rautaki wāwāhi tau tāpiripiri māmā.
5. Ka mārama ki te whaitakenga o te otinga o tētahi rapanga.

Te Taurangi me te Pānga

6. Ka mārama ki te tikanga he maha ngā wāwāhitanga o tētahi tau.
7. Ka hanga, ka whakaroa taurangi raupapa, ka whakamārama hoki i te ture mō te whakaroa.

Te Ine me te Āhuahanga

Te Wāhi me te Ahunga

8. Ka hanga, ka whakamahi mahere māmā:
 - ka whakaatu taunga;
 - ka whakaatu ahunga;
 - ka whakamārama huarahi;
 - ka whakamārama tirohanga.
9. Ka whakamārama taunga, ahunga hoki o ngā wāhi matua o te kura, te tāone me te rohe.

Te Panoni

10. Ka neke, ka whakaata, ka huri, ka whakarahi i ngā āhua ahu-2, ka tuhi, ka whakamārama hoki i ēnei panoni.

Te Tauanga



Te Reo Matatini o te Pāngarau

Ka whakawhitiwhiti whakaaro, ka āta wānanga te ākonga i āna mahi pāngarau, mā te kupu (ā-waha, ā-tuhi), mā te tohu, me ngā momo whakaahuahanga e hāngai ana. He mea nui tēnei hei tautoko i te whakatutukitanga o ngā whāinga paetae e whai ake nei, e pakari anō ai te whakaaro arorau, te whakaaro arohaehae, te whakaaro whaitake me te auhatanga o te ākonga e hāngai ana ki tēnei taumata.

Te Whakamahinga o te Pāngarau

Ka mārama te ākonga, ka torotoro hoki ia i ngā tini whakamahinga o te pāngarau e hāngai ana ki te hapori e noho nei ia. Me kākahu anō ngā whāinga paetae ki ngā momo horopaki o te hapori.

Te Tau me te Taurangi

Te Mātauranga Tau

1. Ka mōhio ki ngā tau
0 – 1 000 000:
 - te whakaingoa i ngā tohutau;
 - ngā momo raupapa tatauranga tauoti;
 - ngā meka matua mō te tāpiri, te tango, me te whakarea;
 - te whakaawhiwhi tauoti, tau ā-ira hoki ki te 1, te 10, te 100 rānei e pātata ana;
 - ngā tikanga uara tū o ngā tauoti me ngā tau ā-ira (kia toru ngā mati ā-ira):
 - te maha o ngā haurau, ngā hautekau, ngā tahi, ngā tekau, ngā rau me ngā mano kei roto i tētahi tau;
 - te rahi me te hanga o tētahi tau.
2. Ka mōhio ki ngā hautau (tae atu ki ngā hautau nui ake i te kotahi) me ngā tau ā-ira:
 - te raupapa hautau (hautahi), tau ā-ira hoki;
 - ngā raupapa tatauranga hautau, tau ā-ira hoki (hautekau, haurau).

Te Ine me te Āhuahanga

Te Ine

1. Ka whakaoti rapanga whaitake e whai wāhi mai ana:
 - te roa;
 - te horahanga;
 - te rōrahi (kītanga);
 - te taumaha (papatipu);
 - te koki;
 - te paemahana;
 - te wā;
 - te utu.
2. Ka whakamahi i ngā momo āwhata maha e whakaatu ana i ngā waeine tauoti me ngā waeine hautau.
3. Ka whiriwhiri i te horahanga o ngā tapawhā hāngai kua hangaia ki te tukutuku tapawhā rite.
4. Ka whiriwhiri i te rōrahi o ngā poro tapawhā hāngai kua hangaia ki te mataono rite.
5. Ka mārama ki te rahi o ngā waeine aro whānui.
6. Ka mārama ki te whaitakenga o tētahi inenga.

Te Hanga

7. Ka whakamārama i te āhuahanga o ngā āhua ahu-2 me ngā āhua ahu-3.
8. Ka tuhi hoahoa, ka hanga tauira hei whakaatu taonga.
9. Ka tūhura i ngā raumata e hangaia ai he āhua ahu-3 māmā.

Te Tauanga

Te Tūhuratanga Tauanga

1. Ka whai i ngā tikanga mō te tūhuratanga tauanga e whai wāhi mai ana te raraunga whakarōpū matatini, te raraunga motumotu tatau, me te raraunga houanga:
 - ka whakatakoto pātai;
 - ka kohikohi raraunga;
 - ka wehewehe raraunga;
 - ka hanga whakaari raraunga e whaitake ana;
 - ka whakaputa kōrero hei whakautu i te pātai i tūhuratia;
 - ka mārama ki ngā tikanga matatika e hāngai ana.
2. Ka tautohu i ngā tauira me ngā ia e kitea mai ana i roto i tētahi huinga raraunga, i waenganui rānei i ētahi huinga raraunga.
3. Ka arotake i te whaihua o ngā momo whakaari raraunga rerekē hei whakaatu i ngā hua o tētahi tūhuratanga tauanga.



Te Tau me te Taurangi

Ngā Rautaki Tau

3. Ka kōwhiri, ka whakamārama i te rautaki e tino whaihua ana hei whakaoti rapanga e whai wāhi mai ana te tauoti, te hautau, te tau ā-ira me te ōrau:
 - rautaki tatau;
 - rautaki whakarōpū;
 - rautaki tohatoha ōrite;
 - rautaki tāpiripiri;
 - rautaki whakarea māmā.
4. Ka mārama ki te whaitakenga o te otinga o tētahi rapanga.

Te Taurira me te Pānga

5. Ka mōhio ki ngā wāwāhitanga tāpiripiri o tētahi tau.
6. Ka whakamahi rautaki tāpiripiri ki te whiriwhiri i tētahi tau o roto i tētahi tauira tau.
7. Ka whakamahi rautaki āhuahanga ki te whiriwhiri i tētahi āhua o roto i tētahi tauira āhua.
8. Ka whakamahi rautaki taurangi māmā ki te whiriwhiri i tētahi huānga o roto i tētahi tauira raupapa.

Te Ine me te Āhuahanga

Te Wāhi me te Ahunga

10. Ka hanga, ka whakamahi pūnaha ki te:
 - whakaatu taunga;
 - whakaatu ahunga;
 - whakamārama huarahi.
11. Ka whakamahi i ngā tōpito matua ki te whakamārama taunga, ahunga hoki.

Te Panoni

12. Ka whakamārama i ngā panoni (whakaata, hurihanga, nekehanga, whakarahinga rānei), e hua ai tētahi mātātuhi, mai i tōna mātāoroko.

Te Tauanga

Te Tūponotanga

4. Ka tūhura i ngā pūāhua tūponotanga māmā:
 - ka whakatairite i ngā putanga whakamātau me ngā matapaenga;
 - ka mārama ki ngā putanga katoa e taea ana;
 - ka mārama ki te taurangitanga o ngā putanga;
 - ka mārama ki te wehe kētanga o ngā whakamātau me ngā putanga.
5. Ka mōhio ki te whānuitanga o te reo hei whakaatu tūponotanga.
6. Ka whakamahi āwhata ki te whakaatu tūponotanga.



Te Reo Matatini o te Pāngarau

Ka whakawhitiwhiti whakaaro, ka āta wānanga te ākonga i āna mahi pāngarau, mā te kupu (ā-waha, ā-tuhi), mā te tohu, me ngā momo whakaahuahanga e hāngai ana. He mea nui tēnei hei tautoko i te whakatutukitanga o ngā whāinga paetae e whai ake nei, e pakari anō ai te whakaaro arorau, te whakaaro arohaehae, te whakaaro whaitake me te auhatanga o te ākonga e hāngai ana ki tēnei taumata.

Te Whakamahinga o te Pāngarau

Ka mārama te ākonga, ka torotoro hoki ia i ngā tini whakamahinga o te pāngarau e hāngai ana ki te hapori e noho nei ia. Me kākahu anō ngā whāinga paetae ki ngā momo horopaki o te hapori.

Te Tau me te Taurangi

Te Mātauranga Tau

1. Ka mōhio ki:
 - ngā meka whakawehe matua;
 - te whakaawhiwhi tauoti, tau ā-ira hoki.
2. Ka mōhio ki ngā tikanga o:
 - te tau tōraro me te tau tōrunga;
 - te tau toitū;
 - te ōwehenga;
 - te uara tū o ngā tau ā-ira;
 - te maha o ngā haumano, ngā haurau, ngā hautekau, ngā tahi, ngā rau me ngā mano kei roto i tētahi tau ā-ira (tae atu kia 3 ngā mati ā-ira).
3. Ka mōhio ki te kimi mai i ngā taurea me ngā tauwehe o tētahi tau.
4. Ka mōhio ki ngā hautau, ngā tau ā-ira, ngā ōrau me ngā ōwehenga māmā:
 - ngā huringa hautanga: hautau ↔ tau ā-ira ↔ ōrau;
 - ngā raupapa tatauranga tau ā-ira (haumano, haurau, hautekau);
 - te raupapa hautau, tau ā-ira, ōrau hoki;
 - te whiriwhiri hautau ōrite.

Te Ine me te Āhuahanga

Te Ine

1. Ka whakaoti rapanga whaitake:
 - ka kōwhiri, ka whakamahi i te waeine e hāngai ana mō te roa, te horahanga, te rōrahi (kītanga), te papatipu (taumaha), te paemahana, te koki me te wā;
 - ka whakawhitiwhiti waeine māmā;
 - ka whakamahi i ngā inenga tapa ki te whiriwhiri i te paenga me te horahanga o te tapawhā hāngai, me te rōrahi o te poro tapawhā hāngai;
 - ka tuhi, ka whakamārama, ka whakamahi hoki i ngā momo wātaka me ngā mahere;
 - ka mārama ki te whaitakenga o tētahi inenga.

Te Hanga

2. Ka tautohu, ka whakamārama i ngā tikanga āhuahanga o ngā rōpū āhua ahu-2 me ngā rōpū āhua ahu-3.
3. Ka tūhono i te āhua ahu-3 me tōna hoahoa ahu-2.
4. Ka tuhi raumata hei hanga matarau.

Te Tauanga

Te Tūhuratanga Tauanga

1. Ka whai i ngā tikanga mō te tūhuratanga tauanga e whai wāhi mai ana te raraunga whakarōpū matatini, te raraunga ine, me te raraunga houanga:
 - ka whakatakoto pātai, tāpaetanga kōrero rānei;
 - ka whakatau i ngā taurangi hei ine;
 - ka whakatau i te tukanga kohikohi raraunga;
 - ka kohikohi raraunga;
 - ka wehewehe raraunga;
 - ka hanga whakaari raraunga e whaitake ana;
 - ka whakatairite i te āhua o ngā tuari raraunga (ngā wēanga me te hora o ngā raraunga);
 - ka whakaputa kōrero mō te pātai i tūhuratia;
 - ka mārama ki ngā tikanga matatika e hāngai ana;
2. Ka mārama ki te tikanga o ngā wēanga me te whakamahinga o ngā wēanga.
3. Ka whakamārama, ka arotake i te whaihua o ngā momo whakaari raraunga, ka whakaputa kōrero mō ngā taurangitanga e kitea mai ana.



Te Tau me te Taurangi

Ngā Rautaki Tau

5. Ka kōwhiri, ka whakamārama i te rautaki e tino whaihua ana hei whakaoti rapanga e whai wāhi mai ana te tauoti, te hautau, te tau ā-ira, te ōrau, te ōwehenga, te tau tōpū me te taupū māmā:
 - rautaki tatau;
 - rautaki tāpiripiri;
 - rautaki whakarea;
 - rautaki pānga riterite māmā.
6. Ka mārama ki te whaitakenga o te otinga o tētahi rapanga.

Te Taurangi me te Pānga

7. Ka mōhio ki ngā momo wāwāhitanga whakarea o tētahi tau.
8. Ka whakaatu pānga rārangi:
 - mā te whārite whai taurangi (ka whakaoti hoki i te whārite);
 - mā te ture;
 - mā te kauwhata.

Te Ine me te Āhuahanga

Te Wāhi me te Ahunga

5. Ka whakaatu, ka whakamārama, ka whakamahi i te wāhi noho (taunga) o tētahi mea, me te ahunga:
 - ngā tōpito;
 - ngā koki o te kāpehu;
 - ngā āhuatanga o te taiao;
 - te tukutuku (takirua raupapa);
 - te mahere.

Te Panoni

6. Ka tautohu, ka whakamārama, ka whakamahi i te hangarite o tētahi āhua ahu-2, āhua ahu-3.
7. Ka tautohu, ka whakamārama, ka whakamahi i ngā āhuatanga pūmau o ngā panoni.

Te Tauanga

Te Tūponotanga

4. Ka tūhura i ngā pūahua tūponotanga:
 - ka whakatairite i te tuari o ngā putanga whakamātau me ngā matapaenga;
 - ka mārama ki ngā putanga katoa e taea ana;
 - ka mārama ki te taurangitanga o ngā putanga kāore e tika ana;
 - ka whakamahi hautanga ki te whakaatu tūponotanga.



Te Reo Matatini o te Pāngarau

Ka whakawhitiwhiti whakaaro, ka āta wānanga te ākonga i āna mahi pāngarau, mā te kupu (ā-waha, ā-tuhi), mā te tohu, me ngā momo whakaahuhanga e hāngai ana. He mea nui tēnei hei tautoko i te whakatutukitanga o ngā whāinga paetae e whai ake nei, e pakari anō ai te whakaaro arorau, te whakaaro arohaehae, te whakaaro whaitake me te auahatanga o te ākonga e hāngai ana ki tēnei taumata.

Te Whakamahinga o te Pāngarau

Ka mārama te ākonga, ka arohaehae hoki ia i ngā tini whakamahinga o te pāngarau e hāngai ana ki tōna hapori. Me kākahu anō ngā whāinga paetae ki ngā momo horopaki maha o te ao whānui.

Te Tau me te Taurangi

Te Mātauranga Tau

1. Ka mōhio ki ngā tikanga o te taupū me te tānga ngahuru.

Ngā Rautaki Tau

2. Ka kōwhiri, ka whakamārama i te rautaki e tino whaihua ana hei whakaoti rapanga e whai wāhi mai ana te tau tōpū, te hautau, te tau ā-ira, te ōrau, te ōwehenga, te pāpātanga, me te taupū:
 - rautaki tatau;
 - rautaki tāpiripiri;
 - rautaki whakarea;
 - rautaki pānga riterite.
3. Ka whiriwhiri, ka whakamahi tauwehe pātahi, taurea pātahi hoki.
4. Ka mārama ki te whaitakenga o te otinga o tētahi rapanga.

Te Taura me te Pānga

5. Ka tuhi whārite rārangi ki te whakatauirā pūāhua whaitake, ka whakaoti hoki i te whārite.
6. Ka whakawhānui i ngā tikanga o roto i ngā rautaki tau hei tūāpapa mō ngā tikanga taurangi.
7. Ka whakaatu i te ōritenga o ngā ture e hāngai ana ki tētahi pānga rārangi kotahi.

Te Ine me te Āhuhanga

Te Ine

1. Ka whakaoti rapanga whaitake:
 - ka kōwhiri, ka whakamahi i ngā waeine, ngā taputapu me ngā āwhata e hāngai ana mō te roa, te horahanga, te rōrahi (kitanga), te papatipu (taumaha), te paemahana, te koki me te wā;
 - ka whakawhitiwhiti waeine.
2. Ka whakaputa, ka whakamahi hoki i ngā ture hei tātai i te paenga me te horahanga o tētahi taparau.
3. Ka whakaputa, ka whakamahi hoki i ngā ture hei tātai i te rōrahi o tētahi poro.
4. Ka mārama ki te whaitakenga o tētahi inenga.

Te Hanga

5. Ka whakaputa, ka whakamahi i ngā tikanga koki o te rārangi pūtahi, te rārangi whakarara me ngā taparau.
6. Ka whakamahi taputapu ki te waihanga taparau māmā.
7. Ka tuhi raumata tōtika hei hanga matarau māmā.
8. Ka tuhi i ngā momo hoahoa hei whakaatu āhua ahu-3.

Te Tauanga

Te Tūhuratanga Tauanga

1. Ka whai i ngā tikanga mō te tūhuratanga tauanga ki te whakamahere, ki te whakatutuki tirohanga tauanga, whakamātau tauanga hoki:
 - ka whakatakoto pātai, tāpaetanga kōrero rānei;
 - ka whakatau i ngā taurangi hei ine me ngā waeine e hāngai ana;
 - ka whakatau i te tukanga kohikohi raraunga;
 - ka kohikohi raraunga;
 - ka wehewehe raraunga;
 - ka āta whakaaro ki ngā take e taurangi ai ngā raraunga;
 - ka kōwhiri i ngā whakaari raraunga e whaitake ana, me te wehewehe anō i ngā raraunga e kitea ai ngā taura, ngā ia, ngā pānga me ngā taurangitanga o ngā raraunga whakarōpū matatini;
 - ka whakatairite i ngā tīpako me te hono anō o ngā tīpako ki ngā taupori, mā te whakamahi i ngā inenga wēanga me te hora o ngā raraunga;
 - ka whakaputa pūrongo mō te pātai i tūhuratia;
 - ka mārama ki ngā tikanga matatika e hāngai ana.



Te Tau me te Taurangi

8. Ka rāwekeweke kīanga i runga i ngā tikanga taurangi.
9. Ka whakaatu pānga rārangi, pānga pūrua, pānga taupū ki te kauwhata hei whakatauiria i tētahi pūāhua whaitake.

Te Ine me te Āhuahanga

9. Ka whakamahi ōwehenga pākoki me te ture a Pythagoras ki te whakaoti rapanga e whai wāhi mai ana te tapatoru hāngai.

Te Wāhi me te Ahunga

10. Ka waihanga, ka whakamārama huanui māmā.
11. Ka tuhi, ka whakamārama taunga, rārangi hoki ki tētahi papa tukutuku, mā te whakamahi i:
 - ngā momo āwhata;
 - ngā tōpito;
 - ngā inenga koki o te kāpehu;
 - ngā momo mahere.

Te Panoni

12. Ka tautohu, ka whakamahi, ka whakamārama i ngā momo panoni me ngā āhuatanga pūmau.

Te Tauanga

2. Ka arotake i ngā tukanga tauanga o tētahi tūhuratanga:
 - te tukanga whai tīpako;
 - te whiriwhiri i ngā inenga wēanga me te hora o ngā raraunga;
 - te tika o ngā kōrero ka puta i te tūhuratanga.

Te Tūponotanga

3. Ka tūhura pūāhua tūponotanga papa-tahi, papa-maha hoki:
 - ka whakamahi hautau, ōwehenga hoki ki te matapae, ki te whakamārama i ngā tuari raraunga ka puta i tētahi whakamātau tūponotanga;
 - ka whakatau i te whaitakenga o te taurangitanga e kitea mai ana i ngā raraunga o tētahi whakamātau tūponotanga.



Te Reo Matatini o te Pāngarau

Ka whakawhitiwhiti whakaaro, ka āta wānanga te ākonga i āna mahi pāngarau, mā te kupu (ā-waha, ā-tuhi), mā te tohu, me ngā momo whakaahuahanga e hāngai ana. He mea nui tēnei hei tautoko i te whakatutukitanga o ngā whāinga paetae e whai ake nei, e pakari anō ai te whakaaro arorau, te whakaaro arohaehae, te whakaaro whaitake me te auhatanga o te ākonga e hāngai ana ki tēnei taumata.

Te Whakamahinga o te Pāngarau

Ka mārama te ākonga, ka arohaehae hoki ia i ngā tini whakamahinga o te pāngarau e hāngai ana ki tōna hapori. Me kākahu anō ngā whāinga paetae ki ngā momo horopaki maha o te ao whānui.

Te Tau me te Taurangi

Ka whakaoti rapanga, ka whakatauirā pūāhua:

Te Mātauranga me ngā Rautaki Tau

1. Ka whakamahi pānga rārangi hāngai, pānga rārangi kōaro hoki.
2. Ka whakawhānui taupū, kia hāngai ki ngā tau tōpū me ngā hautau.
3. Ka whakamahi pāpātanga whakaputa o ia rā.
4. Ka whakamahi rautaki tau ki te whiriwhiri otinga tino whaihua.
5. Ka mārama ki te whaitakenga o te otinga o tētahi rapanga.

Te Whārite me te Kīanga

6. Ka tuhi, ka whakaoti whārite rārangi, tōrite rārangi, whārite pūrua, whārite taupū māmā, whārite tukutahi, kia rua ngā taurangi.

Te Ine me te Āhuahanga

Ka whakaoti rapanga, ka whakatauirā pūāhua:

Te Ine

1. Ka whakatutuki inenga kia hāngai tonu te tōtika o te ine ki te horopaki.
2. Ka whakamahi i ngā hononga o ngā waeine o te pūnaha ngahuru, tae atu ki ngā hononga o ngā waeine mō ngā āhuatanga rerekē.
3. Ka whakamahi ture tātai hei whiriwhiri i te rōrahi o ngā momo poro, ngā koeko me ngā poi.

Te Hanga

4. Ka whakaputa, ka whakamahi i ngā tikanga koki o te porowhita.
5. Ka aro ki ngā āhua ōrite, ā, ka whakamahi whakaaro pānga riterite hei tātai i tētahi tapa.
6. Ka whakamahi ōwehenga pākoki me te ture a Pythagoras, i ngā pūāhua ahu-2, ahu-3 hoki.

Te Tauanga

Ka whakaoti rapanga, ka whakatauirā pūāhua:

Te Tūhuratanga Tauanga

1. Ka whai i ngā tikanga mō te tūhuratanga tauanga ki te whakamahere, ki te whakatutuki tūhuratanga:
 - ka parahau i ngā taurangi me ngā waeine;
 - ka whakatau i ngā pūtakenga o te taurangitanga, pērā i te whakamahi tīpako matapōkere;
 - ka whakamahi whakaari tauanga matatini ki te tautohu, ki te whakawhiti whakaaro mō ngā āhuatanga horopaki, pērā i te ia, ngā hononga taurangi, me ngā taurangitanga o roto, o waenganui hoki i ngā tuari raraunga;
 - ka whakaputa hīkaro ōpaki mō te taupori, ka hua ake i ngā raraunga;
 - ka whakamahi whakaari raraunga me ngā waeine ki te parahau i ngā whakakitenga ka hua ake i te tūhuratanga;
 - ka mārama ki ngā tikanga matatika e hāngai ana.



Te Tau me te Taurangi

Te Pānga me te Taurira

7. Ka whakawhānui i ngā tikanga paheko tau, me ngā tikanga taupū.
8. Ka tūhono i te kauwhata, te tūtohi me te whārite ki ngā pānga rārangi, pānga pūrua, pānga taupū māmā e kitea mai ana i ngā taurira tau me ngā taurira mokowā.
9. Ka tūhono i te pāpātanga o te whiti ki te rōnaki o tētahi kauwhata.

Te Ine me te Āhuahanga

Te Wāhi me te Ahunga

7. Ka whakamahi papa taunga, mahere rānei ki te whakaatu taunga pātahi me ngā rohe o roto i ētahi huanui e rua, nui ake rānei.

Te Panoni

8. Ka whakatairite, ka whakamahi i ngā panoni papa-tahi, papa-maha hoki.
9. Ka tātari taurira hangarite mā te whakaatu i ngā panoni i hangaia ai aua taurira.

Te Tauanga

Te Aroā Tauanga

2. Ka arohaehae i ngā pārongo tauanga ka puta i ngā pāhotanga, mā te tūhono i ngā whakaari raraunga, ngā tauanga, ngā tukanga me ngā tūponotanga ki ngā pārongo.

Te Tūponotanga

3. Ka tūhura pūāhua tūponotanga:
 - ka whakatairite i ngā tuari tātai me ngā tuari whakamātau, me te aro anō ki te rahi o te tīpako;
 - ka tātai tūponotanga i ngā pūāhua e whai wāhi mai ana te raraunga motumotu.

Te Reo Matatini o te Pāngarau

Ka whakawhitiwhiti whakaaro, ka āta wānanga te ākonga i āna mahi pāngarau, mā te kupu (ā-waha, ā-tuhi), mā te tohu, me ngā momo whakaahuahanga e hāngai ana. He mea nui tēnei hei tautoko i te whakatutukitanga o ngā whāinga paetae e whai ake nei, e pakari anō ai te whakaaro arorau, te whakaaro arohaehae, te whakaaro whaitake me te auahatanga o te ākonga e hāngai ana ki tēnei taumata.

Te Whakamahinga o te Pāngarau

Ka mārama te ākonga, ka arohaehae, ka arotake hoki ia i te takenga mai o te mātauranga pāngarau me ngā tini whakamahinga o te pāngarau. Me kākahu anō ngā whāinga paetae ki ngā momo horopaki maha o te ao whānui.

Te Taurangi me te Tuanaki

Ka whakaoti rapanga, ka whakatauiria pūāhua:

Te Taurangi me te Pānga

1. Ka whakamahi tikanga āhuahanga taunga e whai wāhi mai ana te pūwāhi, te rārangi torotika me te kōpiko.
2. Ka tūhura i ngā kauwhata pānga rārangi, kauwhata pānga rārangi-kore hoki, ā, ka tūhono i te hanga o te pānga ki te āhua o te kauwhata.
3. Ka whakamahi i ngā tapeke raupapa tāpiri, me ngā tapeke raupapa whakarea hoki.
4. Ka whakamahi pānga pākoki i ngā pūāhua ahu-2, ahu-3 hoki, tae atu ki te ture aho me te ture whenu.
5. Ka kōwhiri i ngā rauara e hāngai ana hei kimi i te otinga tino whaihua.

Te Whārite me te Kīanga

6. Ka rāwekeweke i ngā kīanga taurangi hautanga, taupūtanga, taupūtanga kōaro hoki.
7. Ka tuhi, ka whakamahi whārite rārangi, whārite pūrua, whārite pākoki māmā hoki.
8. Ka tuhi, ka whakamahi whārite tukutahi, he rārangi-kore tētahi o ngā whārite.

Te Tuanaki

9. Ka tūhura kauwhata pānga me ngā pānga rōnaki e hāngai ana, ā, ka whakamārama i te hononga o tētahi ki tētahi.
10. Ka whakamahi tikanga kimi pārōnaki, kimi pārōnaki-kōaro hoki e whai wāhi mai ana te pūrau.

Te Tauanga

Ka whakaoti rapanga, ka whakatauiria pūāhua:

Te Tūhuratanga Tauanga

1. Ka whai i ngā tikanga mō te tūhuratanga tauanga:
 - ka whakahaere tirohanga tauanga mā te whakamahi tikanga tīpako matapōkere, tikanga whakamātau rānei, ka whakamahi rānei i ngā huinga raraunga kua oti kē te kōhi mai;
 - ka arotake i te āhua o te ine i ngā taurangi, te tukanganga whai tīpako, tukanganga kohikohi raraunga hoki;
 - ka whakamahi mōhiotanga e pā ana ki te horopaki o te tūhuratanga, te tātaritanga raraunga torotoro me te hīkaro tauanga;
 - ka mārama ki ngā tikanga matatika e hāngai ana.
2. Ka whakaputa hīkaro, mai i ngā tirohanga tauanga me ngā whakamātau:
 - ka whakaputa matapae ōpaki, ka whakaoti marohi rāroto, marohi rāwaho hoki;
 - ka whakamahi tauanga māmā ki te whakatauta i ngā tawhā taupori;
 - ka mārama ki te pānga o te rahi o te tīpako ki te tōtika, te taurangitanga rānei o tētahi whakatauta tata.

Te Aroā Tauanga

3. Ka arotake i ngā pūrongo tauanga:
 - ka mārama ki te tūponotanga, me te tūponotanga whai pānga o ngā whakapae;
 - ka tautohu i ngā hapa tīpako me ngā hapa kē atu ka hua mai i ngā rangahau me ngā pōti.

Te Tūponotanga

4. Ka tūhura i ngā pūāhua tūponotanga:
 - ka whakatairite i ngā tuari tātai (pērā i te tuari hangarite) me ngā tuari whakamātau;
 - ka tātai tūponotanga mā te whakamahi tūtohi ararua, hoahoa rākau, whaihanga, me te hangarau e hāngai ana.



Te Reo Matatini o te Pāngarau

Ka whakawhitiwhiti whakaaro, ka āta wānanga te ākonga i āna mahi pāngarau, mā te kupu (ā-waha, ā-tuhi), mā te tohu, me ngā momo whakaahuahanga e hāngai ana. He mea nui tēnei hei tautoko i te whakatutukitanga o ngā whāinga paetae e whai ake nei, e pakari anō ai te whakaaro arorau, te whakaaro arohaehae, te whakaaro whaitake me te auahatanga o te ākonga e hāngai ana ki tēnei taumata.

Te Whakamahinga o te Pāngarau

Ka mārama te ākonga, ka arohaehae, ka arotake hoki ia i te takenga mai o te mātauranga pāngarau me ngā tini whakamahinga o te pāngarau. Me kākahu anō ngā whāinga paetae ki ngā momo horopaki maha o te ao whānui.

Te Taurangi me te Tuanaki

Ka whakaoti rapanga, ka whakatauiria pūāhua:

Te Taurangi me te Pānga

1. Ka whakamahi i ngā tikanga āhuahanga o te motunga koeko.
2. Ka tuhi, ka whakamārama i ngā kauwhata pānga me ngā kauwhata pānga kōaro, kauwhata pānga huri kōaro e hāngai ana.
3. Ka whakamahi whiriwhiringa raupapa, whiriwhiringa raupapa-kore hoki.
4. Ka whakamahi tikanga whakanoho rārangi kōpiko, tauira taupū kōaro, me ngā tikanga rorohiko mō te kauwhata rārangi.
5. Ka tuhi hoahoa rauara hei whiriwhiri i te otinga e tino whaihua ana, ka whakamārama hoki i ngā ara matua.

Te Whārite me te Kīanga

6. Ka rāwekeweke i ngā kīanga pākoki.
7. Ka tuhi, ka whakamahi whārite pākoki, whārite pūrau, me ētahi atu whārite rārangi-kore.
8. Ka tuhi, ka whakamahi pūnaha whārite tukutahi, ka whai wāhi mai kia toru ngā whārite rārangi, kia toru hoki ngā taurangi, ka whakamārama hoki i te otinga i runga i te āhua o te horopaki.
9. Ka rāwekeweke tau hiato hei whakaoti whārite, ā, ka whakaatu anō ki te kauwhata.

Te Tauanga

Ka whakaoti rapanga, ka whakatauiria pūāhua:

Te Tūhuratanga Tauanga

1. Ka whai i ngā tikanga mō te tūhuratanga tauanga:
 - ka whakahaere tirohanga tauanga, whakamātau tauanga rānei, mā te whakamahi tikanga whakamahere whakamātau tauanga, ka whakamahi rānei i ngā huinga raraunga kua oti kē te kohi mai;
 - ka whiriwhiri, ka whakamahi, ka arotake i ngā tauira tauanga e whaihua ana ki te whakatakoto matapae, ki te kimi whakamārama (pērā i te ine hononga taurangi rārangi mō te raraunga matarua, me te tauira tāpiripiri mō te raraunga houanga);
 - ka whakamahi mōhiotanga ki te horopaki o te tūhuratanga, ka whakamahi tikanga tātari raraunga hōpara, ka whakamahi tikanga hīkaro tauanga;
 - ka whakamārama i ngā whakakitenga, ka arotake i ngā wāhanga katoa o te tūhuratanga;
 - ka mārama ki ngā tikanga matatika e hāngai ana.
2. Ka whakaputa hīkaro, mai i ngā tirohanga tauanga me ngā whakamātau:
 - ka whiriwhiri i ngā whakataunga tata me ngā whaitua taupono mō te toharite, te hautanga me te rerekētanga;
 - ka whakamahi tikanga pērā i te tīpako anō, me te whakamatapōkere, ki te aromatawai i te whaitakenga o te taunakitanga.



Te Taurangi me te Tuanaki

Te Tuanaki

10. Ka tautohu i ngā aruarunga me ngā tepe o tētahi pānga.
11. Ka whiriwhiri, ka whakamahi i ngā tikanga maha mō te kimi pārōnaki, te kimi pāwhaitua, te kimi pārōnaki kōaro o tētahi pānga, pērā i te tikanga tātari me te tikanga tau.
12. Ka hanga whārite pārōnaki, ka whakamārama hoki i ngā otinga.

Te Tauanga

Te Aroā Tauanga

3. Ka arotake i te whānuitanga o ngā momo pūrongo pāpāho, pērā i ngā pōtitanga, ngā tirohanga tauanga, ngā whakamātau me ngā rangahautanga mātakitaki;
 - ka arohaehae i ngā kōrero mō te takenga mai o tētahi pānga;
 - ka whakamārama i ngā pae hapa.

Te Tūponotanga

4. Ka tūhura i ngā pūāhua tūponotanga:
 - ka tātari i te tūponotanga o ngā pāpono wehe kē, pāpono paheko me ngā pāpono whakawhirinaki;
 - ka tātari, ka whakamārama i ngā uara me ngā ine mahora o ngā taurangi motumotu matapōkere;
 - ka whakamahi i ngā momo tuari pērā i te tuari Poisson, te tuari huarua me te tuari hangarite.